What is claimed is:

[Claim 1] A method for the production of structural components out of long-fiber thermoplastic (LFT) with integrated continuous-fiber (CF) reinforcements in a single stage LFT - pressing manufacturing process, the method comprising the steps of:

- melting impregnated CF - tapes open in a heating station;

- subsequently transferring the CF-tapes into a two-part profile tool of a CF - profile forming station;

- within the CF-profile forming station, pressing the CF tapes for a short time period by means of a high heat transfer, yielding a shock-cooled, dimensionally stable thin casing layer, the CF tapes defining a CF-profile;

- after the pressing and shock cooling, separating the CF-profile from the profile tool;

- after the separating, transferring the CF-profile into an LFT - tool and positioning the CF-profile in a defined manner;

- after the positioning, introducing a molten LFT - mass into the LFT-tool;

- pressing the LFT-mass together with the CF – profile;

characterized in that during the pressing of the LFT-mass together with the CF-profile, the casing layer is melted open again at the surface and is thermoplastically melted together with the surrounding LFT - mass.

[Claim 2] The method of claim 1 wherein as the LFT - pressing manufacturing process, an LFT - extrusion process with a vertical LFT - press and a horizontal pressing tool is utilised.

[Claim 3] The method of claim 1 wherein as the LFT - pressing manufacturing process, an LFT - injection moulding process is utilised.

[Claim 4] The method of claim 3 wherein an LFT - injection moulding process with back pressing in the source flow is utilised.

[Claim 5] The method of claim 1 wherein several CF - profiles are positioned in the LFT - tool and subsequently pressed together with the LFT - mass.

[Claim 6] The method of claim 1 wherein CF - profiles are simultaneously produced in more than one CF - profile production line.

[Claim 7] The method of claim 1 wherein in a profile tool, more than one CF - profile is produced.

[Claim 8] The method of claim 1 wherein in a CF - profile forming station with more than one profile tool, a plurality of CF - profiles are pressed simultaneously.

[Claim 9] The method of claim 1 wherein in the CF - profile forming station, a multi-stage profile forming process is carried out by means of a multi-part profile tool.

[Claim 10] The method of claim 1 wherein the CF - tapes are pre-formed in plastic condition by pre-forming elements during the transfer into the profile tool.

[Claim 11] The method of claim 1 wherein the shaping of the CF - profile comprises a three-dimensional profile shaping.

[Claim 12] The method of claim 1 wherein the CF - profile in longitudinal direction comprises a bend, a twist, a fold, or a surface structuring and wherein the CF-profile has differing cross-sectional shapes.

[Claim 13] The method of claim 1 wherein by means of the shaping of the tools, shapings on the CF - profiles and shapings of the LFT - mass are produced, for force introductions and for force transmissions between the CF - profiles and the LFT - mass as well as to inserts.

[Claim 14] The method of claim 1 wherein what is formed is a CF - profile with a positioning shoulder, a thick tensile - and compressive force zone on top and underneath as well as a thinner thrust zone in between, which CF-profile is positioned in a rib or in a crimp of the structural component.

[Claim 15] The method of claim 1 wherein the shock-cooling period has a duration in the range of from 1 to 5 sec.

[Claim 16] The method of claim 1 wherein the LFT - mass comprises an average fiber length of at least 3 mm.

[Claim 17] The method of claim 1 wherein the thermoplastic material consists of partially crystalline polymers.

[Claim 18] The method of claim 1 wherein the thermoplastic material consists of partially crystalline polymers are polypropylene, polyethylene-therephthalate, polybutylene-therephthalate or polyamide and the continuous fiber reinforcement consists of glass-, carbon- or aramide fibers.

[Claim 19] The method of claim 1 wherein the CF - profiles comprise a surface layer of 0.1 to 0.2 mm of pure thermoplastic material without CF - fiber reinforcement.

[Claim 20] The method of claim 1 wherein the CF-profiles are built-up out of layers with differing fiber orientations.

[Claim 21] The method of claim 1 wherein additional, shaped, CF - profiles, which have been thermally inversely treated, with a non-deformable internal zone and a molten external zone are produced for dimensionally stable transfer into the LFT - tool.

[Claim 22] The method of claim 1 wherein the CF - profiles comprise locally differingly strong shock-cooling zones between CF - profile and LFT - mass, the zones having thermoplastic bonding of correspondingly differing strengths.

[Claim 23] The method of claim 21 wherein the CF - profiles comprise locally differing shock-cooling zones.

[Claim 24] The method of claim 1 wherein a surface of the CF - profile adjacent to the LFT - tool has been strongly shock-cooled on one side and the opposite side has been more weakly shock-cooled.

[Claim 25] The method of claim 17, characterised in that phase transformation heat of the crystalline material (crystallisation heat, latent heat) is exploited during the shock-cooling in a hysteresis range DEn.

[Claim 26] The method of claim 17, characterised in that surface of the CF - profiles following the shock-cooling are very rapidly brought back again to a temperature above DTkr from a temperature below the crystallisation temperature range DTkr.

[Claim 27] The method of claim 17, characterised in that during the shock-cooling with a slower passage through a crystallisation temperature range DTkr, a corresponding crystalline proportion is generated in a lower layer.

[Claim 28] The method of claim 1, characterised in that the CF - profiles are positioned in shapings of the LFT - tool in differing fitting positions.

[Claim 29] The method of claim 1, characterised in that the CF - profiles in the LFT - tool are positioned on the lower tool or on the upper tool or both.

[Claim 30] An installation for the production of structural components out of long-fiber thermoplastic with integrated continuous fiber - reinforcements in a single stage LFT - pressing manufacturing process, the installation comprising:

- a heating station for the heating-up of impregnated CF – tapes;

- a CF - profile forming station for the shaping and shock-cooling with a profile press and a two-part thermally conditioned profile tool, into which the CF - tapes are transferred;

characterized in that the CF-tapes are pressed for a short time period and in doing so are shaped into a required CF - profile, so that by contact with the thermally conditioned profile tool at a profile surface, and further characterized in that with a high heat transfer, a shock-cooled, dimensionally stable thin casing layer is formed;

further characterized in that the CF – profile, following the defined shock-cooling period, is immediately completely separated from the profile tool and by means of a robot is transferred into an LFT - tool of an LFT - press and there is positioned in a defined manner;

further characterized in that thereupon a molten LFT - mass is introduced and together with the CF - profile is put under pressure, wherein the casing layer is melted open again on the surface and is thermoplastically melted together with the surrounding LFT - mass.

[Claim 31] The Installation of claim 30, characterised by a CF – profile forming station with profile tools, which in zones comprise locally differing thermal conditionings, namely heat transfers, specific heats and heat penetration coefficients or tool temperatures.

[Claim 32] The installation of claim 30, characterised by a CF – profile forming station with a transfer portal and handling elements for pre-forming and transferring of the CF – tapes.

[Claim 33] The installation of claim 30, characterised by an IR – heating station with a protection gas atmosphere, a chain conveyor, a transfer robot with grippers for transferring of the CF – profiles and molten LFT – mass, an LFT – extruder, an LFT – press and an installation control system with partial controls for the different stations.

[Claim 34] A structural component with at least one CF – profile in an LFT – mass, produced according to the method of claim 1 with shock-cooled CF – profiles.

[Claim 35] The structural component of claim 34, characterised in that the CF – profiles comprise a precisely defined shaping and a precisely defined position within the structural component.

[Claim 36] The structural component of claim 34 with partially crystalline thermoplastic material, characterised in that the CF – profiles in the zone of a lower layer below the profile surface comprise an enhanced crystallisation.

[Claim 37] The structural component of claim 34 with partially crystalline thermoplastic material, characterised in that on contact surfaces between CF – profiles and LFT – mass it comprises a directed crystallisation over the contact surface.